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The Home Instinct in Toads.—I originally introduced a few toads into the cellar of my house to destroy slugs, and in a few years they became more of a nuisance than the slugs had been. I had the tenants (my father-in-law and family) to send a lot of them, probably a hundred, over to my greenhouses, all of which were on a level with the ground. The toads came one-half in a tin slop bucket, and the other in a market basket,—both covered. The first day they were to be seen almost everywhere, but restless and excited. Next day very few were to be seen. On the third day none could be found, but on *that* day a large number were seen by several members of the family at the only opening into the cellar,—the cold air flue. None were seen again at the greenhouses (except a few that could not jump the three steps to the surface.) I firmly believe they found their way back, but of course cannot be positive. No toads, except perhaps a single one at a time, had ever before been seen in that yard, and their appearance there in such quantity, in a reasonable time after the disappearance at another place in similar quantity, to my mind is pretty clear. The bee-line distance is about a third of a mile, with two races and the creek between. We have proof of similar home instinct in the cat, carrier pigeon, four-week-old pig, land tortoise, and almost every bird; why not in the toad? I have had the same little owl return to my conductor spout for twenty-five years.—EDWARD TATNALL.

Wilmington, Delaware.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Natural Science Association of Staten Island.—New Brighton, April 11th, 1889.—Meeting called to order at 8.30 o'clock. Dr. N. L. Britton called attention to several specimens of silicified fossils found by Mr. Arthur Hollick in the white Cretaceous gravel on the side of a brook near Prince's Bay. They consisted of a brachiopod mollusk, allied to Pentamerus, a cyathophylloid coral, perhaps Zaphrentis, and a third one, probably a sponge. Dr. Britton remarked as follows: This is one of the most interesting discoveries recently made in our local geology, and is of much more than local importance, inasmuch as it affords valuable evidence towards establishing the origin of the formation known as the Yellow Gravel or Pre-glacial Drift, which has been frequently alluded to in our "Proceedings." I have been especially interested in this latter formation for several years, as it has been a much debated question whence came the yellow gravel, and sand composing it, and from which it derives its name. There were difficulties in the way of accepting hypotheses, advanced by several eminent authorities, that it came either from the northwest or southeast. After a careful survey of a large part of the region where it is found in New Jersey, I had arrived at a conclusion, as long ago as 1883, that it had been derived from the erosion of Cretaceous strata containing gravel outcropping in the vicinity, and that after erosion it had been colored by ferruginous waters. [See Trans. N. Y. Acad. Sci., Vol. IV.] That this coloring is merely more or less on the surface may be seen by breaking the pebbles composing the gravel, and noting the white interior portions. The discovery of these fossils in the Cretaceous gravel goes far towards strengthening the conclusion, for it is a well known fact that similar fossils occur in the Pre-glacial Drift, and we have specimens in our cabinet from the Prince's Bay Bluff and Todt Hill, as previously reported to the Association. The beds of white gravel must lie near the base of the Cretaceous system, and form the exposures at Glen Cove, N. Y., and Camden, N. J. They are known to be of considerable thickness and extent, and as there is unmistakable evidence of some hundreds of feet of erosion from all this part of the country since the Cretaceous era, there is nothing extraordinary about the proposition. The problem still remains, however, Where did these silicified fossils come from originally? We have traced them back one step further, from the Pre-glacial Drift to the Cretaceous gravels, but that is as far as we can go at present. There are ledges of rock from which they might have been derived in Morris county, N. J., but the abundance of silicified fossils in the Pre-glacial Drift seem to require some less remote source.

Mr. Hollick described a recent visit to the Triassic outcrop at Mariners' Harbor, in company with Dr. Britton. This outcrop was mentioned by Wm. W. Mather in "The Geology of New York," where he says (see page 285): "In Richmond county, Staten Island, the red sandstone occupies but a small area where it can be observed * * * * it is believed to range from between Bergen Point and Shooter's Islnad, south-south-westwardly to the Freshkill marshes. It is generally covered by soil, drift deposits, and the sand and clay beds. It may be seen at very low tide, on the shore, about southwest of Bergen Point. It is the slaty, micaceous, fissile, red sandstone and shale." On page 294, in speaking of so-called bird tracks found in the same sandstone in Connecticut, he says: "I have seen no tracks on the red sandstone of Rockland and Richmond Counties, but they may very possibly be found there. My researches were necessarily very limited, in examining this, and in fact all the regions explored in New York." The beach within the limits above described was carefully examined, and although the tide was high the existence of the outcrop was clearly demonstrated. Fully three-fourths of the shingle is composed of red sandstone and shale, and at a point immediately to the west of the foot of South Avenue there is a portion of the beach composed entirely of red clay and decomposed red shale, which is undoubtedly the outcrop described by Mather, although very much broken up by the action of the waves and weather. At this locality a large flat piece of red sandstone was found containing well-defined impressions of some vegetable remains, probably algæ. [The specimen was here presented.] There does not seem to be any other record in regard to this outcrop since Mather so briefly mentioned it, in 1843, and this specimen is probably the only Triassic fossil ever found in place on Staten Island. These facts should be recorded at the present time, as no doubt the shore is destined to be "improved" at no very distant date, and then the outcrop will suffer the same fate as that of the tremolite at New Brighton and the granite at Tompkinsville. There are indications that the Triassic strata are very near to the surface at other localities, especially where a new road is being cut through towards Erastina station. Along one portion of this road the soil is composed entirely of red clay and broken red shale, similar to that upon the shore.

Mr. Wm. T. Davis read the following letter:

NEW YORK, March 27th, 1889.

MR. WM. T. DAVIS.

DEAR SIR:—In reading over the proceedings of your society in the *Standard*, you (the proceedings) say there are no natural butternut trees on the Island. In the town of Westfield, along a stream known as Sandy Brook, there was a natural grove of them extending over nearly half a mile; many of them are there probably yet. This brook is the head-water of Lemon Creek, which runs into Prince's Bay. Part of the trees stood in a wood of my father's; the brook runs in a northerly direction from the Amboy road and crosses the Woodrow road. Yours,

A. WINANT.

Mr. Davis presented further notes upon the locality, and exhibited some butternuts from the trees referred to. Sandy Brook is quite appropriately named. Its course for about a half mile is through a loose sandy soil, and in some of the adjoining fields the yellow drift is sparingly represented, the sand being particularly free from stones of any kind. The yellow gravel is a feature of the neighboring hills. The butternut trees grow in this sand near the brook, and at the present time about ten full grown and a few small ones are standing. A tree leaning over the brook, and to which fence rails have been nailed, measures, at about a yard from the ground, five feet one inch in circumference, and several of the others are nearly as large. They are well known to the people in the vicinity, and one old woman said she had gathered a half a bushel of the nuts last Fall. Further along the brook, when the character of the soil changes, boulders and the usual red drift material prevailing, none of the trees were observed. A colloquy held with a negro elicited the information that he had found one or two trees, years ago, in the woods, so they may be distributed sparingly over the adjacent territory. As might be expected from their character, these sandy fields were favorites with the Indians, and many of their implements are to be found there. Also, it may not be inappropriate to mention this locality as a new one for the yellow pine (*Pinus mitis*), a few trees growing on the neighboring hills, principally in the groves of *Pinus inops*. Of the latter trees there is one clump in particular that deserves to be recorded, on account of the size, number and beauty of the trees, which have grown close together.

Mr. Jas. Raymond presented an Indian axe, found during some excavating on the old Dongan estate at West New Brighton. Also two net sinkers from Tottenville. Mr. Davis presented a hammerstone from the locality above mentioned, near Sandy Brook, and Mr. Hollick reported finding a similar implement and some pottery at the same locality. Dr. Britton showed a skin scraper, found near the Vanderbilt Mausoleum, and two arrow heads from Mariners' Harbor. Also specimens of stilbite, from the upper Graniteville trap quarry—a mineral new to the Island.

May 9th, 1889.—A communication was read from Mr. Joseph C. Thompson, noting the capture of a twenty-one pound snapping turtle on the south side of the Island. It was two feet nine inches in length, with a carapace measuring fourteen inches in lateral and ten inches in transverse diameter.

A specimen of *Labia minor*, a species of earwig new to the Island, also captured by Mr. Thompson, was shown by Mr. Wm. T. Davis. It is found in New England, and occurs commonly in Europe.

Dr. N. L. Britton presented the celt or skin scraper, shown at the last meeting, with the following memorandum: The implement was found by Mr. Booth Davy, assistant superintendent of the Moravian Cemetery, near the Vanderbilt Mausoleum, about eighteen inches beneath the surface of the ground, at the foot of a large hickory tree. No other evidences of Indian occupation were noticed in the vicinity. Mr. Davy desired to present it to the Association.

Mr. E. M. Eadie showed a large lance- or spear-head from Watchogue.

Mr. Arthur Hollick presented specimens of the sandstone containing fossil vegetable remains, from the shore at Tottenville. Also similar stone from the shore at Perth Amboy. At this latter locality it was found in place, in the form of concretions, in an irregular layer at the top of the Cretaceous clay. The rock contained, besides vegetable remains, impressions of mollusca. This find is another important link in the chain of evidence identifying our Tottenville fossil leaves with the Cretaceous formation, and it is probable that the clay is almost at the surface of this locality, where it is covered by the Drift. This supposition is borne out by the fact that a new outcrop of Cretaceous clay was discovered at low tide on the beach, about a quarter of a mile west of the Prince's Bay light-house. The same sandstone occurs there, where the junction of the Drift and Cretaceous may be seen. It has not been found in the Drift under any other circumstances.

A list of Staten Island fungi, named by Mr. J. B. Ellis, from specimens in the cabinet of the Association, was presented for publication.

October 10th, 1889.—Mr. Wm. T. Davis read the following additional notes in regard to butternut trees on the Island.

In addition to the butternut trees growing along Sandy Brook, mentioned in the proceedings of April 11th, 1889, a single large tree was discovered during the past summer on a sand dune, near the Rossville Road. 'Mid the surrounding pines, wild cherries, etc., many little trees, seedlings from this one, are springing up, and if they are not destroyed by fire, there will probably soon be a considerable grove of them on this part of the Island. The dune is some distance to the west of the little swamp where Sandy Brook rises, and is nearly a mile from the trees previously reported. Mr. Wm. S. Page has informed me that trees of this species grew on the Vail place, near the bluff at Prince's Bay, and not far from Lemon Creek. A glance at the map will show, from the localities given, that the trees extend in a belt across the Island from North to South, following in a general way the direction of Sandy Brook.

Mr. George J. Hicks showed a set of five sparrow-hawk's eggs, found last May on Todt Hill, by Spire Pitou, George W. Jewett and J. J. Hicks. The nest was in a hollow tree, almost thirty feet from the ground. In the same tree were nests of the red-headed woodpecker and high holder. This is the first recorded instance of the nest of this bird having been found on the Island.

Mr. James Raymond presented a large stone axe, skin scraper and several arrow heads from Tottenville.

Mr. Arthur Hollick showed fossils, mostly corals, found in the yellow gravel overlying the limonite ore on Todt Hill.

Dr. Britton remarked that an outcrop of Cretaceous clay had been recently reported at the foot of Eltingville road, and Mr. Hollick stated that recent excavations near the railroad trestle beyond Arlington station had exposed Triassic shale in considerable quantity, and that the locality would probably repay careful examination. Other exposures of this formation at Mariners' Harbor and Erastina, were described in the proceedings for April 11th, 1889.

A list of the fungi in the cabinet of the Association, named by Mr. J. B. Ellis, of Newfield, N. J., was presented, which will be published as a special.

SCIENTIFIC NEWS.

THE session of the Marine Biological Laboratory during the past summer was as successful as the most sanguine could wish. Every room and table was occupied, and some applicants were refused merely on account of lack of accommodations. Altogether forty-four persons were at work there during the summer. Among the changes made the following were the more important: The northern side of the investigator's room was divided by partitions into ten small studies for advanced students, who were invited to avail themselves of the facilities of the Laboratory free of expense. Each room was furnished with table, chair, glassware, reagents, aquarium, etc. The iron water pipes were replaced by wooden ones, and a large tank was erected outside the building. The library proved extremely valuable. Through the generosity of Mrs. Evans of Boston the trustees had $1,000 to spend for books, and this was increased by an appropriation from the general fund. The result is that the library is now furnished with sets of the more important journals, while naturalists all over the United States contributed "extras" of their papers.

Twenty-five students occupied the lower laboratory, spending their time at dissecting and microscopical work, while the nineteen others present were engaged in investigation, and soon the world will begin to see the results of their work. Among the subjects studied were the